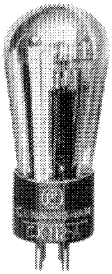
Cunningham RADIO TUBES

CX-112-A



DETECTOR, AMPLIFIER

The 112-A is an improved storage battery tube. It is sensitive as a detector and excellent as a three-electrode radio-frequency and audio-frequency amplifier.

CHARACTERISTICS

Filament Voltage (D. C.)			5.0	Volts
Filament Current			0.25	Ampere
Plate Voltage	90	135	180 *max.*	Volts
Grid Voltage	−4.5	−9	−13.5	Volts
Plate Current	5.2	6.2	7.6	Milliamperes
Plate Resistance	5600	5300	5000	Ohms
Amplification Factor	8.5	8.5	8.5	
Mutual Conductance	1500	1600	1700	Micromhos
Load Resistance	5600	8700	10800	Ohms
Undistorted Power Output	30	115	260	Milliwatts
Grid-Plate Capacitance		8.1		μμf.
Grid-Filament Capacitance		4.2		μμf.
Plate-Filament Capacitance		2.1		μμf.
Maximum Overall Length				4 11/16"
Maximum Diameter				1 13/16"
Bulb (See page 42, Fig. 8)				S-14
Base				Medium 4-Pin

INSTALLATION

The **base** pins of the 112-A fit the standard four-contact socket. The socket should be installed so that the tube will operate in a vertical position. Cushioning of the socket in the detector stage may be desirable if microphonic disturbances are encountered. For socket connections, see page 39, Fig. 1.

The coated **filament** employed in the 112-A may be operated conveniently from a 6-volt storage battery. A fixed or variable resistor of suitable value is required to reduce the battery voltage to 5.0 volts across the filament terminals at the socket. At this voltage, the most satisfactory operating performance will be obtained.

APPLICATION

As a **detector,** the 112-A may be operated either with grid leak and condenser or with grid bias. The recommended plate voltage for the former method is 45 volts. A grid leak of from 0.25 to 5 megohms used with a grid condenser of 0.00025 μf. is suitable. The grid circuit return should be connected to the positive filament terminal.

For grid bias detection, plate voltages up to the maximum value of 180 volts may be used. The corresponding grid bias should be adjusted so that the plate current, when no signal is being received, is about 0.2 milliampere. Usually, a plate voltage of 135 volts with a grid bias of approximately −15 volts will be satisfactory.

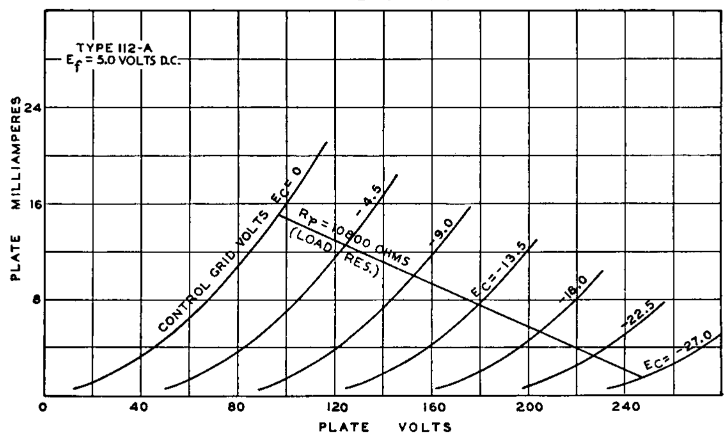
As an **amplifier,** the 112-A is applicable to the audio- or the radio-frequency stages of a receiver. Plate voltages and the corresponding grid voltages for audio amplifier service should be determined from the tabulated characteristics and the curves in order to obtain optimum performance and freedom from distortion. The

higher plate voltages will be found advantageous under conditions where the impressed grid signal is large or where maximum power output is desired.

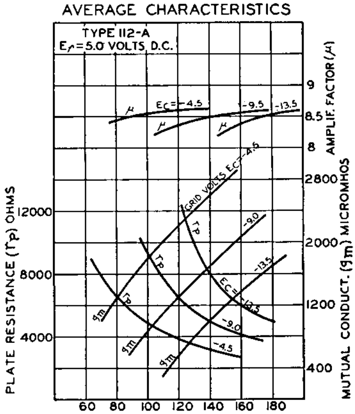
When the 112-A is used as a radio-frequency amplifier, little is gained from plate voltages exceeding 90 volts. If the 112-A is substituted for the '01-A in radio-frequency circuits, it may be necessary to readjust the neutralizing condensers or to increase the value of the grid suppressor resistors to prevent oscillation.

Volume Control of the receiver may be accomplished by variation either of the grid bias or the plate voltage applied to the radio-frequency stages.

AVERAGE PLATE CHARACTERISTICS



AVERAGE CHARACTERISTICS



AVERAGE CHARACTERISTICS

